

REMARKS

Claims 2-4, 7-16, and 28-33 were pending. Claims 4, 7, 9-11, 13-16, and 28 have been amended to improve their clarity and consistency. Claim 34 has been added. Claims 2-4, 7-16, and 28-34 are pending.

1. Rejection under 35 U.S.C. § 103(a) based on Koo:

Claims 3, 4, 7, 8, and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 6,169,295 to Koo. The rejection of these claims is traversed.

Claim 7 recites an imaging device including “a semiconductor imaging chip” supported by a support structure. The “semiconductor imaging chip” has “an array of photosensitive elements for receiving an image and for generating a plurality of corresponding image signals.”

Koo discloses an infrared transceiver module, not an imaging device. The device disclosed by Koo is capable of transmitting and receiving an infrared signal, but is not “configured to receive an image and generate a plurality of corresponding image signals.” Recognizing that Koo does not disclose an imaging chip having an array of photosensitive elements, the Office Action suggests that it “would have been obvious to one of ordinary skill in the art to form a plurality of photosensitive elements in the structure of Koo in order to form a functional device.” Applicant respectfully disagrees. Koo states that lenses of the transceiver modules need not be particularly precise because such transceiver modules “are not used for imaging purposes.” (Col. 1, lines 53-54.) Moreover, the device disclosed by the patent issued to Koo by definition is functional (as an infrared sensor), making inapposite the suggestion in the Office

Action that the modification of including a plurality of photosensitive elements was motivated by a desire to “form a functional device.” Koo contains no teaching or suggestion of an “imaging device” as the term is commonly understood and is used and described in the specification and claims. Thus, it appears to applicant that the rejection relies on hindsight in an improper attempt to replicate the claimed subject matter using the prior art. The invention of claim 7 is patentable over the reference to Koo, along with dependent claims 2, 3, 4, 8, 9, 10, 32, and 34.

2. Rejection under 35 U.S.C. § 103(a) based on Koo in view of Park et al.:

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Koo in view of U.S. Pat. No. 5,053,298 to Park et al. This rejection is traversed.

Claims 9 and 10 depend from claim 7, and therefore are patentable over Koo for at least the reasons set forth above with reference to claim 7. Park et al. does not cure the deficiencies of Koo. Park et al. discloses a color filter having color filter layers 39, 45, 51 formed over a polyimide planarizing layer 37. The Office Action attempts to characterize Park et al. as establishing that it is convention to incorporate color filters within transparent material 37. Applicant respectfully disagrees with this characterization of Park et al., noting that whereas color filter patterns 38, 43, 49, are formed in the upper region of the polyimide planarizing layer 37, the color filter layers 39, 45, 51 are formed over the polyimide planarizing layer 37. Moreover, since Koo does not teach or suggest an imaging device, there is no motivation to modify the infrared sensor of Koo to incorporate the color filter array disclosed by Park et al. The motivation appears, therefore, to come only from applicant’s disclosure used improperly in an attempt to piece together selected teachings of the prior art and reconstruct the recited subject matter. Indeed, even if properly motivated, the proposed combination would produce an infrared sensor with a color filter array,

which is nonsensical. Claims 9 and 10 are patentable over the proposed combination of Koo and Park et al.

3. Rejection under 35 U.S.C. § 103(a) based on Koo in view of Anderton et al.:

Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Koo in view of U.S. Pat. No. 5,596,228 to Anderton et al. This rejection is traversed.

Claim 2 depends from claim 7, and therefore is patentable over Koo for at least the reasons set forth above in connection with claim 7. Anderton et al. does not cure the deficiencies of Koo.

Anderton et al. discloses an apparatus for cooling charge coupled device (CCD) imaging systems. Anderton et al. discloses CCD arrays, but does not suggest replacing the infrared sensor disclosed by Koo with a CCD imaging array. Further, as noted above, Koo relates to infrared transceivers that are not used for imaging. See col. 1, lines 53-54 of Koo. Lacking motivation in the references, the Office Action asserts broadly that such a modification would have been obvious to one of ordinary skill in the art "since most light sensitive elements in the art are arranged in array[s]." Applicant respectfully disagrees for the reasons earlier presented. Claim 2 is patentable over Koo in view of Anderton et al.

4. Rejection under 35 U.S.C. § 103(a) based on Enomoto in view of Koo:

Claims 11-13, 15, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 5,321,297 to Enomoto in view of Koo. The rejection of these claims is traversed.

Claim 11 recites an imaging system including “a system for transmitting an image including an image source, said image source being arranged to transmit the image simultaneously onto each of a plurality of imaging devices.” Each of the plurality of imaging devices includes “a semiconductor device including an array of photosensitive elements, each semiconductor device being mounted on a respective frame, each of said frames having a support structure, each of said semiconductor devices receiving said image and generating corresponding signals.” Each “frame, support structure, and respective semiconductor device is encapsulated in a respective package...for protecting and supporting each said semiconductor device, each of said packages being formed of transparent material, said transparent material including injection molded resin for transmitting the image from said image source onto said semiconductor device.”

Enomoto discloses an image pickup device including an array of photodiodes 2. Each photodiode 2 is provided with a light converging lens, the curvature of which can be independently adjusted. Enomoto does not teach or suggest an imager with a plurality of imaging devices, each imaging device being made up of “a semiconductor device including an array of photosensitive elements, each semiconductor device being mounted on a respective frame, each of said frames having a support structure, each of said semiconductor devices receiving said image and generating corresponding signals.” In addition, Enomoto does not teach or suggest a plurality of imaging devices, each having a “frame, support structure, and respective semiconductor device” encapsulated in a respective package “for protecting and supporting each said semiconductor device, each of said packages being formed of transparent material, said transparent material including injection molded resin for transmitting the image from said image source onto said semiconductor device.” Claim 11 is accordingly patentable over Enomoto.

Koo does not cure the deficiencies of Enomoto. Specifically, Koo does not provide elements missing from Enomoto, such as a “system for transmitting an image including an image source, said image source being arranged to transmit the image simultaneously onto each of a plurality of imaging devices,” each imaging device being made up of “a semiconductor device including an array of photosensitive elements.” Claim 11 and its dependent claims 12-16 are patentable over the proposed combination of Enomoto and Koo.

5. Rejection under 35 U.S.C. § 103(a) based on Enomoto in view of Koo and Park et al.:

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Enomoto in view of Koo, further in view of Park et al.

Claim 14 depends from claim 11, which is patentable over Enomoto and Koo. Park et al. does not cure the deficiencies of Enomoto in view of Koo. As noted above, although Park et al. is cited in the Office Action for disclosing a color filter formed in plastic, the color filter layers 39, 45, 51 are formed over the polyimide (plastic) planarizing layer 37. Moreover, Park et al. does not provide the elements missing from the proposed combination of Enomoto and Koo to provide a “system for transmitting an image including an image source, said image source being arranged to transmit the image simultaneously onto each of a plurality of imaging devices,” each imaging device being made up of “a semiconductor device including an array of photosensitive elements.” Claim 14 is patentable over the proposed combination of Enomoto, Koo, and Park et al.

6. Rejection under 35 U.S.C. § 103(a) based on Enomoto in view of Koo:

Claims 28, 29, 31, and 33¹ stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Enomoto in view of Koo. The rejection of these claims is traversed.

Claim 28 recites an imaging device including “a housing having a cavity and a bottom surface,” and “a semiconductor imaging chip located within said cavity of said housing.” The semiconductor imaging chip includes “an array of photosensitive elements configured to receive an image and generate corresponding signals.”

Enomoto discloses a semiconductor imaging array. Each pixel 2 of the array is developed in a well formed in semiconductor substrate 1. Enomoto does not teach or suggest a housing and a semiconductor imaging chip including “an array of photosensitive elements configured to receive an image and generate corresponding signals” located within a “cavity of said housing.”

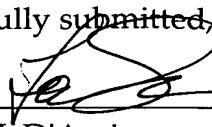
Koo does not cure the deficiencies of Enomoto. As discussed above, Koo discloses an infrared transceiver, not an imaging device. Consequently, Koo does not disclose missing features or suggest modifying the device disclosed by Enomoto to provide a housing and a semiconductor imaging chip including “an array of photosensitive elements configured to receive an image and generate corresponding signals” located within a “cavity of said housing.” Claim 28 and its dependent claims 29, 31, and 33 are patentable over the proposed combination of Enomoto and Koo.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

¹ The Office Action contains no details regarding the rejection of claim 33. Applicant assumes that claim 33 stands rejected with claims 28, 29, and 31.

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Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

Peter McGee

Registration No.: 35,947

DICKSTEIN SHAPIRO MORIN &

OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorneys for Applicant